# FutureHorizons

The Global Semiconductor Industry Analysts

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### Toshiba Unveils 1.5TB QLC 3D Flash

Toshiba Memory Corp. has developed a prototype of a BiCS FLASH device that delivers 4-bit-per-cell (quadruplelevel cell, QLC) technology. Toshiba claims that this is the world's first BiCS FLASH three-dimensional (3D) flash memory with a stacked cell structure.

Multi-bit cell flash memories store data by managing the number of electrons in each individual memory cell. Achieving QLC technology posed a series of technical challenges, as increasing the number of bit-per-cell by one within same electron count requires twice the accuracy of triple-level cell (TLC) technology.

#### ARM SoCs Take Soft Roads To Neural Nets

SAN JOSE, Calif. — NXP is supporting inference jobs such as image recognition in software on its i.MX8 processor. It aims to extend its approach for natural-language processing later this year, claiming that dedicated hardware is not required in resource-constrained systems.

The chip vendor is following in the footsteps of its merger partner, Qualcomm. However, the mobile giant expects to eventually augment its code with dedicated hardware. Their shared IP partner, ARM, is developing neural networking libraries for its cores, although it declined an interview for this article.

NXP's i.MX8 packs two GPU cores from Vivante, now part of Verisilicon. They use about 20 opcodes that support multiply-accumulates and bit extraction and replacement, originally geared for running computer vision.

#### **TDK Increases 3D Transponder Coil Sensitivity**

TDK Corp. has released the B82453CA 3D transponder coil family with high sensitivity levels for passive entrypassive start (PEPS) and other access systems for automotive applications.

Measuring 11. x 12.5 x 3.6mm, the series features six types of 3D transponder coils that offer sensitivity levels from  $45 \text{mV}/\mu\text{T}$  to  $83 \text{mV}/\mu\text{T}$  and inductance values from 4.75mH to 13.2mH. The center frequency is at 125 kHz.

According to TDK, the core geometry of the 3D transponder coils enables them to have 20% higher sensitivity levels compared to their predecessor or competitor components with comparable geometries and inductance values. This also enables the wake-up function of PEPS in vehicles applications to be activated at greater distances.

#### **Drones Use AI To Fight Poaching In Africa**

Al software company Neural Inc. is working with the Lindbergh Foundation to build intelligent drones to help in the effort to stop poaching in Africa.

Neurala software will be used as a part of the Lindbergh Foundation's Air Shepherd Program, which is dedicated to the elimination of illegal poaching of elephants and rhinos in southern Africa using cutting-edge software-based predictive analysis and drones to stop poachers before they can reach target animals.

Neurala's technology can learn from any sensory stream to identify an object of interest. The company will be assisting the foundation's analysts by sifting through terabytes of video, including infrared, in real time as the drone is flying, pinpointing animals, vehicles and poachers, both during the day and at night.

#### **IBM Develops Low-Level Task Automation**

An IBM team from Ireland has completed the initial phase of the One Button Machine project that aims to automate the feature engineering step of a Data Science project.

Data scientists turn raw data into actionable insights that help drive business values or, sometimes, even disrupt industries or create entirely new ones. In the IT industry, being a data scientist is one of the most sought after position. Harvard Business Review, in 2012, even called the profession the "sexiest job of the 21st century."

Surprisingly, however, data scientists spend the majority of their time on low-level tasks such as collecting, cleaning and organising data. According to Forbes, up to 70% of typical data science projects is spent on such tasks.